

the nucleus was the same as the spectrum of the first and second; but green predominated in the spectrum. The meteor itself was emerald-green. In the train I saw the sodium band, and the band in the magnesium region about 1650 of Kirchhoff. The positions of the three meteors were as follows:—

	Beginning.	End.	
12 ^h 34 ^m 23 ^s	{ A.R. 6 ^h 27 ^m 13 ^s D. + 55° 57'	{ 8 ^h 27 ^m 59 ^s 57° 1'	1st meteor.
12 ^h 55 ^m 0 ^s	{ A.R. 21 ^h 31 ^m 29 ^s D. + 7° 2'	{ 22 ^h 12 ^m 30 ^s 25° 39'	2nd „
13 ^h 30 ^m 30 ^s	{ A.R. 0 ^h 44 ^m 54 ^s D. + 3° 34'	{ 22 ^h 37 ^m 51 ^s 27° 12'	3rd „

The time given is mean time at the Observatory: it is 7^m 24^s east of Vienna.

On the 25th July Mr. Nagy observed 65 meteors; on the 26th, also 65; on the 27th, 93; on the 28th, 18; on the 29th, 49 meteors, with the meteor spectroscope: in five days 286 meteors were observed; of these, 9 were as large as *Venus*; 35 first magnitude; 53 second magnitude; 58 third magnitude; 68 fourth magnitude; 44 fifth magnitude; and 19 sixth magnitude.

August 12th, 1873.

Views of the Ancient Rabbins relative to the Dimensions of the Earth. By A. D. Wackerbarth.

On the 14th of November, 1862, the Society did me the honour of reading a paper of mine relative to the history of the theories entertained in different ages concerning the spherical form of the Earth and its rotation on its axis. In that essay I endeavoured to show, that the Rabbins of the Cabbalistic School, *e.g.* the author of the *Zohar* (Simeon ben Yochai)*, and the author of the *Imre Binah*, entertained just notions both as to the figure and rotation of our planet. I would now add that these old Jewish teachers were also in possession of a very fair approximation to the dimensions of our globe.

The Greek or Egyptian land-surveyors' cubit has been determined by Sir Henry James with (as I believe) all possible accu-

* This truly great writer was an ascetic and recluse, who is said to have lived with his son for twelve years in a cavern, where God caused a fountain to spring up and a *Cerantia Siliqua* tree (? Bread-fruit) to grow for their sustenance. For the sake of economy in clothes they did not dress themselves till the hour of evening prayer, but, to avoid the scandal of nakedness, studied all day buried up to their necks in sand. Epoch, about that of the second temple's destruction.

racy to be 18.2405 inches (English). The Hebrew ordinary cubit will therefore be 6 palms, *i. e.* six-fifths of this, or 21.8886 inches = 1.82405 feet, which agrees with Arbuthnot's estimate, 1.824.

In the treatise, *Pesachim*, פְּסָחִים of the Talmud, fol. 94 recto, we find it stated, that the circumference of the Earth is 6000 פָּרָסָיִם, or Parasangs.* Now a Parasang, פָּרָסָה, is = 12,000 אַמּוֹת (or אַמּוֹן, for both forms of the plural occur), or cubits; whence we have,

$$\text{One אַמָּה, or Cubit} = 2 \cdot \pi \cdot \frac{\text{Radius of Earth}}{72,000,000}.$$

The latest and, I believe, most reliable determination of the dimensions of the Earth, that I know of, is that of the English *Topographical Corps*, published by Colonel Clarke. If we take the equatorial semidiameter there given as our radius of the Earth, we have

$$\begin{aligned} \text{Cubit} &= 2 \cdot \pi \cdot \frac{20,926,062}{72,000,000} \text{ ft.} \\ &= 1.82572, \end{aligned}$$

differing from the true value, 1.82405, determined by Sir Henry James only by 0.00167 = 0.00167, or the 50th part of an inch.

To make an exact agreement would require a radius of 20,906,885 ft., which is somewhat greater than the mean between Col. Clarke's equatorial and polar semi-axis.

This, however, at any rate seems to show that the ancient Rabbins were in possession of a very fair approximation to the dimensions of the Earth; one, in fact, that comes within about 19,000 feet of the true length of the radius; but from what source they had obtained their information is more than I am able to explain.

Upsala, 1873, July 25.

Observations of a portion of the Moon's limb, not on the Sun's disk, during the late Solar Eclipse. By Henry Pratt.

The attention of the last meeting having been drawn by Capt. Noble to a hitherto unrecorded phenomenon observed by him during the partial eclipse of May 26th, 1873, a few additional notes of a similar and independent observation made by myself may not be without interest.

During the Eclipse the Sun was occasionally obscured by clouds for short intervals, often its light was diminished by a thin veil of haze, and again at other intervals it was perfectly clear

* שְׁתַּא אֶלְפֵי פָּרָסִי הוּא עֵלְמָא.